

Claims

What is claimed is:

SA₁ 1. A method for verifying a location of an area of interest within a sample, the method comprising the steps of:

- 3 a) locating a datum mark on the sample;
- 4 b) identifying the area of interest within the sample;
- 5 c) determining the location of the area of interest relative to the mark; and
- 6 d) locating again the datum, wherein the location of the area of interest is
7 verified if a dimensional error in locating the datum in step d relative to step a is less than
8 a tolerance value.

- 1 2. The method of claim 1 wherein the step of identifying the area of interest within
2 the sample comprises the step of optically scanning the sample.
- 1 3. The method according to claim 1 wherein the tolerance value is between about ten
2 microns and one thousand microns.
- 1 4. The method according to claim 1 further comprising the steps of:
2 identifying a plurality of areas of interest within the sample; and
3 ranking the plurality of areas of interest in an order.
- 1 5. The method according to claim 1 wherein the sample comprises a cytological
2 specimen deposited on a slide.
- 1 6. The method according to claim 5 wherein the area of interest within the sample
2 comprises an abnormal cell.
- 1 7. The method according to claim 1 wherein the sample is mounted on a stage.

1 8. The method according to claim 1 further comprising the step of rejecting the
2 sample if the location of the area of interest is not verified.

1 9. The method according to claim 1 further comprising the step of placing a visible
2 indicator proximate the area of interest identified within the sample.

1 10. A method for verifying a location of an area of interest within a sample, the
2 method comprising the steps of:
3 a) locating a datum mark on the sample;
4 b) assigning a reference coordinate value to a location of the mark;
5 c) identifying an area of interest within the sample;
6 d) assigning a coordinate value to the location of the area of interest; and
7 e) spatially locating the mark, thereby determining a spatial offset value of
8 the mark relative to the reference coordinate value;
9 wherein the location of the area of interest is verified if the spatial offset value is
10 less than a tolerance value.

1 11. The method according to claim 10 wherein the step of first locating the datum
2 mark comprises the step of centering the mark in a field of view of an optical
3 instrument.

1 12. The method of claim 10 further comprising the step of storing in memory the
2 coordinate value of the area of interest.

1 13. The method according to claim 10 further comprising the steps of:
2 a) transferring the sample to a review station;
3 b) locating the datum mark; and

4 c) setting a coordinate system of the review station based on a location of the
5 mark.

1 14. A method for verifying a location of an area of interest within a cytological
2 specimen on a slide loaded in an automated cytological imaging system, the
3 method comprising the steps of:

4 a) placing the slide within an optical path of the imaging system;

5 b) centering a datum mark on the slide within a field of view of the imaging
6 system;

7 c) assigning a reference coordinate value to a location of the mark;

8 d) storing in memory the reference coordinate value;

9 e) scanning the specimen to identify an area of interest within the specimen;

10 f) centering the area of interest within the field of view of the imaging
11 system;

12 g) assigning a coordinate value to the area of interest;

13 h) returning to the reference coordinate value location;

14 i) spatially locating the mark; and

15 j) comparing the reference coordinate value to a coordinate value resulting
16 from step i, thereby determining a spatial offset value of the mark,
7 wherein the location of the area of interest is verified if the spatial offset value is
8 less than a tolerance value.

15. A device for use in an imaging system for imaging a sample, the device
comprising a slide having an area adapted for deposition of the sample thereon,
the slide having at least two datum marks thereon, wherein the area is bounded, at
least in part, by the at least two marks.

1 16. The device of claim 15 wherein the sample comprises a cytological specimen.

2 17. The device of claim 15 wherein a location of each of the at least two marks is
3 within a predetermined tolerance value.

1 18. The device of claim 15 further comprising an indicator placed on the slide at a
2 location of a region of interest within the sample area.

1 19. The device of claim 18 wherein the region of interest within the sample area
2 indicates a location of an abnormal cell.

20. An imaging system for verifying a location of an area of interest within a sample,
the imaging system comprising:

3 a) an optical system; and

4 b) a stage movable relative to the optical system, at least one of the optical
5 system and the stage being operable to position the sample in an optical
6 path of the optical system,

7 wherein the imaging system is capable of spatially locating a datum mark on the
8 sample and determining a spatial offset value of the mark relative to a nominal
9 position thereof.

1 21. The imaging system according to claim 20 wherein the sample is a cytological
2 specimen deposited on a slide.

1 22. An apparatus for observing a sample and for verifying a location of an area of
2 interest within the sample, the apparatus comprising:

3 a) an imaging system, the imaging system comprising:

4 i) a first optical system; and

5 ii) a stage movable relative to the first optical system, at least one of the
6 optical system and the stage being operable to position the sample in an
7 optical path of the first optical system;

8 b) a computer server in communication with the imaging system; and

9 c) a review station in communication with the server, the review station comprising
10 a second optical system,
11 wherein the first and the second optical systems are operable to spatially locate a datum
12 mark on the sample, and to standardize respective coordinate systems of the first optical
13 system and the second optical system.

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